ENGIE Refrigeration supplies the right cooling for every process: from efficient chillers, environmentally friendly heat pumps and modular re-cooling systems to turnkey solutions such as refrigeration containers or modules. Efficiency, sustainability, cost effectiveness and first-class expertise in technical solutions are hallmarks of every ENGIE Refrigeration project. Our individualised advice and comprehensive services are centred around our customers and their requirements. As a member of the worldwide ENGIE Group, we have a global network of specialists at our disposal and can realise our refrigeration solutions both at home and abroad.

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Cooling Towers
Energy-efficient solutions for open circuit, closed circuit and double-cell cooling towers.

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ENGIE Refrigeration
cooling towers
are good for circulation

Non-corrosive, energy-efficient and resource-saving.

As our customer, we know that only one thing matters to you: to get the best temperature for your process. Our mission is to provide the required “chill factor” as efficiently as possible.

We built our first cooling tower in 1957, and have worked with our customers to plan and design a large number of cooling tower systems ever since. Our service portfolio encompasses the entire field of cooling tower engineering, from detailed 3D-CAD design, to simulations of cooling towers, and profitability analyses.

Your cooling towers will be provided according to your criteria regarding cooling capacity, power consumption and noise level. We plan the details for you, and monitor the installation and entry into service.

Our extensive service network always ensures rapid maintenance and spare parts supply. Once your cooling tower is in service, we will support you with our comprehensive service and training throughout the system’s lifespan.
Overview of our range

VENTUM Open circuit, wet evaporative cooling towers

Both open and closed circuit evaporative cooling towers are available. The water which needs to be cooled only comes into contact with the air in open circuit cooling towers. This is not the case with closed circuit cooling towers.

VENTUM Closed circuit, wet evaporative cooling towers

VENTUM Compact-F Series
Forced-draught closed circuit cooling towers.
Cooling power up to 30 MW.

VENTUM Double-cell cell cooling towers

When cooling with a double cell system in the summer, the evaporation heat of the water is used; and in the winter, the heat of the temperature difference is emitted into the air. On cooler days, the system operates like a pure dry cooler, and the heat transfer surface only gets wet during periods of high ambient air pressure.

VENTUM Cooling towers for hire

Installed quickly and reliably in the event of capacity constraints or failure.
**Components**

**Casing**
The casing is available with or without a water basin, and is made of fibreglass-reinforced polyester. The screws are made of stainless steel. The standard colour is blue, RAL 5015. Other RAL colours are available on request.

**Axial ventilation fan**
The blades are made of fibreglass-reinforced plastic or aluminium, and are adjustable when stationary. In models up to VENTUM Compact 450, the axial ventilation fan and the electric motor are directly connected. From model VENTUM Compact 680 onwards, it is driven by the gear motor.

**Drift eliminator**
Profiled plastic elements prevent water droplets from entering the airflow.

**Water distribution system**
Self-cleaning, full-cone plastic nozzles are attached onto the water distribution pipes.

**Cooling components**
The cooling components are designed using rot-proof, temperature-resistant plastic packing.

**Louvres**
The air inlet louvres are made of plastic, and prevent water from spurring out. They can easily be dismantled for inspection and cleaning purposes.

**Sieve basket strainer**
The sieve basket strainer is attached to the lower shell before use, and prevents dirt from entering the water cycle.

**Float valve**
The float valve supplies additional water.

**Accessories**

- Air intake and outlet silencers
- Sound insulation matting to reduce water impact
- Aluminium ladder and maintenance platform, both with safety rails
- Thermostat to alter the fan speed, depending on the cold water temperature
- Repair switch
- Exterior water distribution pipe
- Sieve basket strainer
- Float valve

**Advantages**

- Wide range of services, different sizes, and economic power levels
- Non-corrosive, long life and light weight, as only fibreglass-reinforced polyester is used
- Low energy consumption and easy maintenance due to induced draught ventilators
- Long maintenance intervals
- Simple and economical installation, with pre-assembled units which are suitable for transportation
- Stylish design and various RAL colours, allowing harmonious integration into and adaptation to existing buildings

---

**VENTUM Compact Series Technical data**

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The nominal cooling capacities given in the table apply to the cooling of water from 32 °C to 26 °C, and from 40 °C to 25 °C at a wet bulb temperature (WBT) of 21 °C. The minimum and maximum flow rates do not apply to the nominal cooling capacities.

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**Figure 4**
VENTUM Compact Series, cooling tower, model VENTUM Compact 930
VENTUM Modupol Series

Components

Casing
The modular casing is made of three kinds of fibreglass-reinforced polyester. The screws are made of stainless steel. The standard colour is blue, RAL 5015. Please see pages 24/25 for 3D CAD drawings of various VENTUM Modupol versions.

Axial ventilation fan
The blades are made of fibreglass-reinforced plastic or aluminium, and are adjustable when stationary. It is driven by geared motors with one or two rotational speeds. A protective grille covers the fan.

Drift eliminator
Profiled plastic elements prevent water droplets from entering the airflow.

Water distribution system
Self-cleaning, full-cone plastic nozzles are attached onto the water distribution pipes.

Louvres
The air inlet louvres are made of plastic, and prevent water from spurtting out. They can easily be dismantled for inspection and cleaning purposes.

Accessories

• Air intake and outlet silencers
• Sound insulation matting to reduce water impact
• Aluminium ladder and steps, both with safety rails and direct access to the gear motor
• Exterior water distribution pipe
• Thermostat to alter the fan speed, depending on the cold water temperature
• Heating, which keeps the water drainage zone ice-free in winter
• Thermostat to alter the level of heat, depending on the cold water temperature
• Sieve basket strainer for water drainage
• Oil level monitoring

Advantages

• Non-corrosive, long life and light weight, as only fibreglass-reinforced polyester is used
• Very high cooling capacity, re-cooling up to 3,600 m³ of water per hour. Even greater demands can be met through the linear arrangement of multiple cooling towers.
• Individual systems in a modular system with several variants and modular designs, with an optional water basin
• Low energy consumption and easy maintenance due to induced draught ventilators
• Long maintenance intervals
• Simple and economical assembly and factory-installed elements

Open circuit, non-corrosive plastic cooling tower with axial ventilation fan.

VENTUM Modupol Series Technical data

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The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 26°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C. The minimum and maximum flow rates do not apply to the nominal cooling capacities.

Figure 5
Two VENTUM Modupol cooling towers, with special ventilator and air intake and outlet silencer for process water cooling.
VENTUM Compact-D Series

Quiet evaporative cooling tower, made of corrosion-free galvanized plastic.

Components

Casing
The casing and the water basin are made of fibreglass-reinforced polyester. The standard colour is blue, RAL 5015. Other RAL colours are available on request. A stainless steel screen is mounted in front of each water drain. There is an inspection panel for adjusting the float valve and cleaning the filter and water basin.

Axial ventilation fan
Two-sided absorbent, low-noise, high-performance centrifugal fan made of galvanized steel. The ventilator is driven by a three-phase motor and a V-belt. A protective grille covers all moving parts.

Drift eliminator
Profiled plastic elements prevent water droplets from entering the airflow.

Water distribution system
Self-cleaning, full-cone galvanized plastic nozzles are attached onto the water distribution pipes.

Cooling components
The cooling components are designed using rot-proof, temperature-resistant plastic packing materials.

Flexible coupling
The ventilator is linked to the casing of the cooling tower, and prevents structure-borne sound transmission.

Accessories

- Sound proofing Air intake and outlet silencers with casing made of fibreglass-reinforced polyester, with optional grille
- Flexible coupling for connection to air supply and outlet ducts
- Louvres for incoming and outgoing air
- Galvanized steel support frame for the rapid construction of the entire cooling tower
- Float valve for fresh water supply
- Heating, which keeps the water drainage zone ice-free in winter
- Thermostat to alter the fan speed, depending on the cold water outlet temperature
- Thermostat to alter the level of heat, depending on the cold water temperature
- Exterior water dispenser made of fibreglass-reinforced polyester or polypropylene

Advantages

- Quiet operation due to radial fans
- Increased noise protection due to sound insulation
- Simple and economical installation, due to pre-assembled units or delivery of the assembled support frame
- Accurate size regulation by wide selection of models
- A model for all cooling requirements
- Non-corrosive, long life and light weight, as only fibre-glass-reinforced polyester is used
- Waterproof casing made of fiberglass reinforced polyester
- Suitable for use in enclosed areas, due to low noise levels, low overall height and air duct connection possibility
- Long maintenance intervals
- Different RAL colours available, allowing integration into buildings

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<th>Type</th>
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The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 26°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C. The minimum and maximum flow rates do not apply to the nominal cooling capacities.
VENTUM Compact-D-EC Series

Energy-optimised evaporative cooling tower with EC fan module and integrated frequency converter.

Components

Casing
The casing and the water basin are made of fibreglass reinforced polyester. The standard colour is blue, RAL 5015. Other RAL colours are available on request. A stainless steel screen is mounted in front of each water drain. There is an inspection panel for adjusting the float valve and cleaning the filter and water basin.

Axial ventilation fan
Single inlet, low-noise, high performance radial fan made of galvanised sheet steel. The power unit is integrated into the directly-driven ventilator fan in the electric motor. A protective grille covers all moving parts. The ventilator fans are built into a non-corrosive blower box. This docks directly onto the cooling tower.

Drift eliminator
Profiled plastic elements prevent water droplets from entering the airflow.

Water distribution system
Self-cleaning, full-cone galvanised plastic nozzles are attached onto the water distribution pipes.

Cooling components
The cooling components are designed using rot-proof, temperature-resistant plastic packing materials.

Accessories

• Sound proofing Air intake silencers with aluminium casing, and outlet silencers with fibreglass reinforced polyester casing, with optional grille
• Flexible coupling for connection to air supply and exhaust ducts
• Float valve for fresh water supply
• Heating, which keeps the water drainage zone ice-free in the winter
• Thermostat to alter the fan speed, depending on the cold water outlet temperature
• Thermostat to alter the level of heat, depending on the cold water temperature
• Exterior water dispenser made of fibreglass reinforced plastic or polypropylene

Advantages

• EC fan module with integrated frequency
• Converter ensures optimum energy efficiency
• Higher thermal efficiency due to a laterally docked blower box
• Quiet operation due to radial fans
• Increased noise protection due to sound insulation
• Simple and economical installation, due to pre-assembled units
• Non-corrosive, long life and light weight, as only fibreglass-reinforced polyester is used
• Waterproof casing made of fibreglass reinforced polyester
• Suitable for use in enclosed areas, due to low noise levels, low overall height and air duct
• Connection possibility
• Long maintenance intervals
• Different RAL colours available, allowing integration into buildings

VENTUM Compact-D-EC Series Technical Data

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The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 26°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C. The minimum and maximum flow rates do not apply to the nominal cooling capacities.
**VENTUM Compact-E Series**

Open circuit, aerator-pressurised wet cooling tower in stainless steel casing.

**Components**
- **Casing**
  - The casing is made of stainless steel sheets, which are bolted and sealed together by stainless steel screws. The bottom of the casing is designed with a slope with a 2% gradient, so that the residue or cooling water can be drained from the lowest point of the basin.
- **Double-inlet radial fan**
  - A radial fan with forward curved blades made of galvanised steel is mounted onto the cooling tower casing. The fan casing is galvanised. The fan is driven by an IEC v-belt motor.
- **Drift eliminator**
  - Profiled plastic elements with a high filtration efficiency level prevent water droplets from entering the air flow.

**Water distribution system**
- Water distribution system in stainless steel casing with galvanised plastic distribution nozzles.

**Cooling components**
- The fillers are made of UV-resistant plastic, rot-proof and temperature resistant.

**Accessories**
- Fill-level monitoring (analogue or digital)
- Air intake and outlet silencers, with integrated stainless steel protection grille
- Air duct with inspection panel
- Thermostat for fan motor control
- Float valve for fresh water
- Sump heating (electric) with boil-dry protection
- Thermostat to control the sump heater
- Noise insulation with longitudinal damping strips
- Automatic damper in the fan
- Electric multiflap damper in the air inlet and outlet duct
- Flexible connectors for inlet and exhaust air
- Inspection panel for easy access
- Inspection portholes in the casing

**Advantages**
- Non-corrosive casing made of stainless steel
- Indoor installation is also possible
- Low space requirements and low height
- Low noise level, due to laterally-arranged radial fans
- Optionally equipped with inlet and outlet air silencers
- Separate driving motor for the fan
- Simple to use and to maintain
- Adjustment to all specified services

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**VENTUM Compact-E Series Technical Data**

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<th>Water flow rate in m³/h</th>
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</table>

The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 26°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C. The minimum and maximum flow rates do not apply to the nominal cooling capacities.

---

**Figure 9**
VENTUM Compact-E Series, cooling tower model 400
Pressurised, closed circuit evaporative cooling tower with lateral radial fan.

**Components**

- **Casing**
  - The casing is made of stainless steel sheets, which are bolted and sealed together by stainless steel screws.
  - The bottom of the casing is designed with a slope with a 2% gradient, so that the residue or cooling water can be drained from the lowest point of the basin.

- **Double-inlet radial fan**
  - A radial fan with forward curved blades made of galvanised steel is mounted onto the cooling tower casing. The fan casing is galvanised. The fan is driven by an IEC v-belt motor.

- **Drift eliminator**
  - Profiled plastic elements with a high filtration efficiency level prevent water droplets from entering the air flow.

- **Water distribution system**
  - Water distribution system in stainless steel casing with galvanised plastic distribution nozzles.

**Cooling components**

- For heat transfer, slightly inclined galvanised tube heat exchangers are built into the casing on a stainless steel support structure. The heat exchangers are connected to the customer's pipe network by means of pipe couplings.

**Accessories**

- **Fill-level monitoring** (analogue or digital)
- **Air intake and outlet silencers, with integrated stainless steel protection grille**
- **Air duct with inspection panel**
- **Thermostat for fan motor control**
- **Float valve for fresh water**
- **Sump heating (electric) with boil-dry protection**
- **Thermostat to control the sump heater**
- **Noise insulation with longitudinal damping straps**
- **Automation damper in the fan**
- **Electric multiflap damper in the air inlet and outlet duct**
- **Flexible connectors for inlet and exhaust air**
- **Inspection panel for easy access**
- **Revision hatch near to the heat exchanger**

**Advantages**

- Non-corrosive casing made of stainless steel
- Indoor installation is also possible
- At part load and low external temperatures, the cooling tower can be operated without water spray
- Low space requirements and low height
- Low noise level, due to laterally-arranged radial fans
- Optionally equipped with inlet and outlet air silencers
- Separate driving motor for each fan
- Simple to use and to maintain
- Good accessibility to valves and pumps
- Adjustment to all specified services
- No pollution or oxygen absorption into the circulating water
- External tube heat exchanger made of hot-dip galvanised steel
- Fully-piped spray circuit, with external pump

**Figure 10**

Vented pressure evaporated cooling tower from the VENTUM Compact-F Series

Closed circuit, with side mounted radial fan.

---

**VENTUM Compact-F Series Technical Data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Minimum</th>
<th>Maximum</th>
<th>32/28°C</th>
<th>40/25°C</th>
<th>Motor power in kW</th>
<th>Dimensions in mm</th>
<th>Weight in kg</th>
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<td>Water flow rate m³/h</td>
<td>Cooling capacity in kW</td>
<td>Length</td>
<td>Width</td>
<td>Height</td>
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</table>

The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 28°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C.

The minimum and maximum flow rates do not apply to the nominal cooling capacities.
VENTUM Compact Dual Series

Closed circuit dual cooling tower with axial fans.

Components

Casing
Non-corrosive stainless steel support structure.

Axial ventilation fan
The inlet axial flow fans are driven by external rotor motors by default, or optionally driven directly with geared motors.

Heat exchangers
The heat exchangers are in a V-shaped structure and consist of copper tubes with aluminium slats, arranged in a stainless steel frame. The slats are covered with a hydrophilic coating.

Water distribution system
Low pressure spraying system (≤ 3.5 bar), consisting of stainless steel tubes and spray nozzles made of plastic, for direct spraying onto the blades. Includes pre-filter, control valves and manually operated drain valve.

Accessories

• Three-dimensional, curved axial impellers for noise reduction, equipped with guard screen on the air outlet side
• Restraint system
• Optional drip tray for excess water or rain water
• Non-slip coating
• Hygienic design
• Temperature sensor
• Thermostat
• Vibration control

Advantages

• Non-corrosive casing made of stainless steel
• Quiet axial fans with high efficiency
• Separate drive for each fan, for optimum reliability
• Double-cell cooling towers can dissipate the heat both in wet and dry conditions
• Low water and electricity requirements
• No swath formation

VENTUM Compact Dual Series Technical Data

<table>
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<th>VENTUM Compact Dual</th>
<th>Water flow rate m³/h (ethylene glycol 35%)</th>
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The nominal cooling capacities given in the table apply to the cooling of water from 32°C to 26°C, and from 40°C to 25°C at a wet bulb temperature (WBT) of 21°C.

The minimum and maximum flow rates do not apply to the nominal cooling capacities.

Figure 11 VENTUM Compact Dual Series, cooling tower model VENTUM Compact Dual 2500-58
Hiring a cooling tower has many advantages. If the present cooling capacity is no longer sufficient for seasonal demand or production peaks, or if the system fails, rapid assistance is required. Increasing the cooling capacity by expanding the current system is often not worthwhile. The hireable cooling tower, model VENTUM Compact-D 930 MC is the perfect solution.

The VENTUM Compact-D 930 MC is a ready-to-install cooling tower, which is built into a robust container frame. This design allows for easy transportation and so ensures flexible use. The hireable cooling tower complies with all the current requirements of the industrial sector. It is equipped with a conventional control that regulates the cold water temperature of the cooling tower basin. The control also provides a signal to activate the protection against dry running for an external pump module. Each screen displays a water inlet and outlet temperature. For winter use, the device is equipped with a heater and dry-running protection.

**Product Characteristics**
- Non-corrosive, solid plastic cooling tower
- Rugged industrial quality design
- High serviceability and user-friendliness

**Options**
- Integrated desalination system
- Ladder
- Pump module
- Customer-specific adjustments

**Dimensions**
- L/W/H 6.058 m x 2.438 m x 2.896 m
- Transport weight: 4,000 kg
- Operating weight: 8,500 kg

**Connections**
Water pipe connections:
- Cooling tower flow 2 x storz A according to DIN 14309; 100 mm diameter
- Cooling tower return 4 x storz A according to DIN 14309; 100 mm diameter
- GEKA fresh water supply

Electrical connections:
- 1 x CECON 400 V/63 A
- Starting current 80 / 380 A
- Consumption in operation 13 / 49 A

The hireable cooling tower is ready for use within 24 hours. The VENTUM Compact-D 930 MC is the perfect solution.

**Installed quickly and reliably in the event of capacity constraints or failures.**

Figure 12
VENTUM Compact-D 930 MC – a ready-to-install cooling tower module

Problems with cooling technology do not stick to office hours. Which is why our service team is there for you 24 hours a day.

Our distribution centre and the local stocks in the service offices guarantee that you are supplied quickly with original spare parts of all the usual brands – with short delivery routes and extremely fast response times.

**We can do a lot for you:**

- 24/7 troubleshooting
- Monitoring
- Remote maintenance
- Modular maintenance
- Upgrading services
- Efficiency check
- Training
- Repairs
- Consulting and planning

Close to you around the clock
3D CAD drawings

Cross-sectional diagram VENTUM Modupol

- Figures 13, 14 und 15
- VENTUM Modupol 2100/09
- Please see pages 9/9 for further details

Cross-sectional diagram VENTUM Compact

- Figure 16
- VENTUM Compact 680/09
- Please see pages 6/7 for further details

### Variant 1:
- with air inlet valves
  - Gear motor with axial impeller
  - Fan casing
  - Inspection panel, with railings, gratings and support bracket (optional)
  - Drift eliminator
  - Packing
  - External water distribution pipe (optional)
  - Concrete tanks (on site)
  - Internal water dispenser with water distribution nozzle
  - Air inlet louvre W105

### Variant 2:
- with air inlet valves and fibreglass storage basins
  - Fibreglass basin
  - Fan support
  - Air inlet louvre W105

### Variant 3:
- With air inlet valves underneath

### Additional Components:
- Motor and Ventilator
- Protective grid
- Drift eliminator
- Water distribution pipe with full-cone nozzles
- Inspection porthole
- Packing
- Air inlet louvre
- Water basin